



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
BIOLOGICAL SCIENCES**

3RD YEAR 2ND SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3322
COURSE TITLE: PLANT METABOLISM
EXAM VENUE: STREAM: (BIO)
DATE: EXAM SESSION:

TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in Section A and Any two questions in Section B**
 - 2. Candidates are advised not to write on question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Name any three electron acceptor molecules involved in photochemical reactions of photosynthesis. (3 marks)
2. Differentiate between static solution culture and continuous flow solution culture in hydroponics. (3 marks)
3. Describe the assimilation of ammonia in plants. (3 marks)
4. Explain why excessive moisture limits biological nitrogen fixation. (3 marks)
5. List the three special termination Codons that are recognised by the release factor proteins. (3 marks)
6. Describe photorespiration in plants. (3 marks)
7. (i) Name the enzyme synthesized by bacteria during nitrogen fixation. (1 mark)
(ii) Describe the importance of Leghemoglobin in symbiotic nitrogen fixation. (2 marks)
8. Explain how Tetracycline inhibits protein synthesis in Bacteria. (3 marks)
9. Outline any three criteria for essentiality of mineral nutrients. (3 marks)
10. Describe photophosphorylation in plants. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Describe the Carbon Reduction Reactions of Photosynthesis. (20 marks)
12. Describe the Legume Nodule formation process. (20 marks)
13. Discuss why short supply of nitrogen has the greatest negative impact on plant performance. (20 marks)
14. Discuss protein biosynthesis. (20 marks)